WHAT IS CLAIMED IS:

1.   A precoded OFDM system, comprising:

    means for inserting one or more zeros between each of two sets of K consecutive information symbols, which may be independent of an ISI channel, wherein the insertion of zeros causes the data rate to be expanded in the precoded OFDM system, removing spectral nulls of the ISI channel without knowing the channel information, and without increasing the encoding/decoding complexity.

2.   A precoded OFDM system as recited in claim 1, wherein scalar sequences are vectorized and a scalar ISI channel is converted to a matrix ISI channel.

3.   A precoded OFDM system as recited in claim 2, wherein the matrix ISI channel is converted into N matrix ISI-free subchannels with N constant matrices.

4.   A precoded OFDM system as recited in claim 3, wherein the N constant matrices are nonsquared.

5.   A vector OFDM system used to reduce a data rate overhead of a prefix insertion, comprising:

    means for blocking together each K consecutive information symbols as a $K \times 1$ vector sequence, reducing the data rate overhead of the original cyclic prefix insertion by K times and improving the bit error rate (BER) performance of the vector OFDM system.

6.   A vector OFDM system as recited in claim 5, wherein scalar sequences are vectorized and a scalar ISI channel is converted to a matrix ISI channel.

7.   A vector OFDM system as recited in claim 6, wherein the matrix ISI channel is converted into N matrix ISI-free subchannels with N constant matrices.

8.   A vector OFDM system as recited in claim 7, wherein the N constant matrices are squared.